

Are Serum Procalcitonin and Interleukin-1 Beta Suitable Markers for Diagnosis of Acute Pyelonephritis in Children?

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Abstract: Rapid diagnosis of acute pyelonephritis is important because of its association with long-standing complications. This study was conducted to compare the reliability of serum procalcitonin (PCT) and interleukin-1 beta (IL-1 β) with conventional laboratory parameters for diagnosis of acute pyelonephritis in children. Seventy nine children with urinary tract infection were divided into two groups based on the result of Tc-99m dimercaptosuccinic acid renal scan: acute pyelonephritis (n=33) and lower UTI (urinary tract infection) (n=46) groups. White blood cell (WBC) count, neutrophil count, erythrocyte sedimentation rate (ESR), serum C-reactive protein (CRP), PCT and IL-1 β concentrations of both groups were measured and compared. WBC count, neutrophil count, ESR, serum CRP, PCT and IL-1 β concentrations were higher in acute pyelonephritis patients than in the lower UTI group ($P<0.05$). The sensitivity and specificity of serum PCT and IL-1 β for diagnosis of acute pyelonephritis were 31, 84.7% and 27.2, 90% respectively (using a cut-point value of 0.5 ng/ml for PCT and 6.9 pg/ml for IL-1 β). The sensitivity of PCT and IL-1 β for diagnosis of acute pyelonephritis was less than that of conventional markers such as ESR and CRP. This study revealed that serum PCT and IL-1 β are not good biologic markers for differentiating acute pyelonephritis from lower UTI. It seems that conventional inflammatory markers such as ESR and CRP besides the clinical findings are more reliable for the diagnosis of acute pyelonephritis in children.

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